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Author

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List of Subjects in 50 CFR Part 17

Endangered and threatened wildlife, Fish, Marine mammals, Plants (agriculture).

Regulation Promulgation

Accordingly, part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, is amended as set forth below:

PART 17—[AMENDED]

1. The authority citation for part 17 continues to read as follows:

Authority: Pub. L. 93-205, 87 Stat. 884; Pub. L. 94-359, 90 Stat. 911; Pub. L. 95-632, 92 Stat. 3751; Pub. L. 96-159, 93 Stat. 1225; Pub. L. 97-304, 96 Stat. 1411; Pub. L. 100-478, 102 Stat. 2308; Pub. L. 100-653, 102 Stat. 3825 (16 U.S.C. 1531 *et seq.*); Pub. L. 99-625, 100 Stat. 3500, unless otherwise noted.

2. Amend § 17.12 (h) by adding the following, in alphabetical order under the family Papaveraceae, to the List of Endangered and Threatened plants:

§ 17.12 Endangered and threatened plants.

.....
(h) * * *

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
Papaveraceae—Poppy family:						
<i>Argemone pleiacantha</i> ssp. <i>pinnatisecta</i>	Sacramento prickly poppy	U.S.A. (NM).....	E	359	NA	NA

Dated: July 18, 1989.

Susan Recce Lamson,
Acting Assistant Secretary for Fish and
Wildlife and Parks.

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50 CFR Part 17

RIN 1018-ABOZ

Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Virgin River Chub

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The Service determines the Virgin River chub (*Gila robusta seminuda*) to be an endangered species under the provisions of the Endangered Species Act (Act) of 1973, as amended. This species occurs in the Virgin River in Arizona, Nevada, and Utah. Threats to the Virgin River chub include habitat changes, disease, floods, toxic spills, and competition with exotic fishes. The

species is particularly vulnerable to these threats because of its very limited distribution. In accordance with 4(b)(6)(C) of the Act, the final designation of critical habitat included in the proposed rule is postponed. This rule implements the full protection provided by the Act for the Virgin River chub.

EFFECTIVE DATE: September 25, 1989.

ADDRESSES: The complete file for this rule is available for inspection, by appointment, during normal business hours at the Service's Fish and Wildlife Enhancement Office, 1745 West, 1700 South, Salt Lake City, Utah 84104.

FOR FURTHER INFORMATION CONTACT: Mr. Donald L. Archer, Salt Lake City, Utah (see ADDRESSES above) (801/524-4430 or FTS 588-4430).

SUPPLEMENTARY INFORMATION:

Background

Gila robusta seminuda was first collected from the Virgin River near Washington, Utah, by members of the Wheeler Survey and described as a species intermediate between *Gila robusta* and *Gila elegans* (Cope and Yarrow 1875). Later authors have treated this chub as a subspecies of

robusta along with other chubs from various stream systems in the Colorado River basin (Ellis 1914, Miller 1946, LaRivers and Trelease 1952). Holden and Stalnaker (1970) showed that the subspecific name *seminuda* should refer only to the chub in the Virgin River, and that specimens from other localities represent other subspecies of *Gila robusta*. Holden and Stalnaker (1970) and Minckley (1973) indicated that the Virgin River population is a valid subspecies, and Smith et al. (1977) supported this conclusion with extensive taxonomic analyses.

The Virgin River chub is a very silvery medium-sized minnow that averages about 20 centimeters (cm) or 8 inches (in) in total length but can grow to a length of 45 cm (18 in). *Gila robusta seminuda* can be distinguished from other subspecies by the number of rays (9 to 10) in the dorsal, anal, and pelvic fins, and the number of gill rakers (24 to 31). The back, breast, and part of the belly have small, deeply embedded scales that are difficult to see and may be absent in some individuals. This characteristic is the basis for the subspecific name *seminuda*.

A closely related form of *Gila robusta*, which appears to be an undescribed

subspecies, is found in the Moapa River in Nevada. The Moapa River was originally a tributary of the Virgin River, but both are now tributaries to Lake Mead, a reservoir on the Colorado River. Although the Moapa form of *Gila robusta* has also suffered population declines in the past, has a reduced range, and presently exists at low population levels (Cross 1976, Deacon and Bradley 1972), the Moapa form is not affected by the present listing of the Virgin River chub.

Gila robusta seminuda is endemic to 134 miles of the Virgin River in southwest Utah, northwest Arizona, and southeast Nevada. Historically, the Virgin River chub is believed to have occurred throughout most of the Virgin River from its original confluence with the main stem Colorado upstream to La Verkin Creek, near the town of Hurricane, Utah. Cope and Yarrow (1875) refer to the chub's abundance near Washington, Utah, as "this species is by no means scarce, as several hundred were observed captured by boys with hook and line." However, recent studies (Cross 1975, Woundfin Recovery Team 1977-1986) suggest that a large decrease in range and numbers of this species has occurred in the last century, primarily from 1860 to 1900 when many of the present water diversions were constructed. These diversions dewatered approximately 35 miles of the chub's natural habitat. With the construction of Hoover Dam and the impoundment of Lake Mead an additional 40 miles of river was inundated, for a nearly total destruction of almost 56 percent of the chub's original habitat.

This species presently occurs in only 50 miles of the mainstream Virgin River between Mesquite, Nevada, and La Verkin Creek near Hurricane, Utah; only twice has it been recorded in a tributary (Cross 1975, Hickman 1985). It is most common in deeper areas where waters are swift, but not turbulent, and is generally associated with boulders or other cover (Minckley 1973). It occurs over sand and gravel substrates in water less than 90 °F (30 °C), and is very tolerant of high salinity and turbidity (Deacon and Holden 1977). The Virgin River chub is an omnivore, eating algae, aquatic and terrestrial insects, organic detritus, and crustaceans (Cross 1975).

In a study of the fishes of the Virgin River from 1973 to 1975, Cross (1975) found very few young-of-the-year Virgin River chubs or adults over 17.5 cm (7 in) in standard length. During this study, Cross was able to capture only 154 individual chubs, comprising only 1 percent of the 10,822 native fish

specimens he collected. The Woundfin Recovery Team reported good chub reproduction in 1978, 1983 and 1986. Hickman (1988) found good reproduction in 1983 and 1986 but very little in 1984, 1985, 1987 or 1988.

The size of many riverine fish populations, such as the Virgin River chub population, often fluctuates over time due to erratic environmental conditions. It is not clear what the major influencing factors are but fish produced during successful years may dominate the population and, for long-lived species, may influence its structure for many years. Thus, the size and future survival of the population is strongly influenced by the frequency of successful reproductive years and the survival of the young of those years. Man's alteration of natural hydrologic cycles and other perturbations in the Virgin River has caused changes in this system that may have resulted in fewer periods of optimal reproduction for the Virgin River chub.

During 1986, after salvaging 1200 Virgin River chub, all fishes were eradicated from a 21-mile reach of the Virgin River in Utah from the Washington Fields diversion downstream to the head of the Virgin River Gorge. The purpose was to eradicate the exotic red shiner (*Notropis lutrensis*). A few months later the fish population below Quail Creek Reservoir was further impacted by a devastating flood which resulted from the collapse of a dike retaining about 25,000 acre feet of water in the Quail Creek Reservoir. This event is believed to have had a devastating impact on the entire fish population in 85 miles of the Virgin River.

Potential threats to the species' survival include further water removal, additional impoundments, sedimentation, pollution, channel alteration, disease, and competition and/or predation by introduced species. The threats are magnified by the low numbers and naturally limited range of this fish and its consequent vulnerability to extensive losses from a single threat or even a single event.

Lands along those portions of the Virgin River occupied by the Virgin River chub are administered by the Bureau of Land Management (BLM), the States of Utah and Arizona, and private landowners. In Arizona about 80 to 90 percent of the lands along the river are administered by BLM, with private land being concentrated in the vicinity of Littlefield. In Utah, about 13 miles of the lands along the river are managed by BLM, the State owns 4 parcels with small amounts of river frontage, and the

remainder is privately owned. In Nevada, lands along the river above the town of Mesquite are privately owned.

On August 23, 1978, the Service published a proposal to list the Virgin River chub as endangered with critical habitat (43 FR 37668). On September 30, 1980, the Service withdrew the above proposal, because it was not finalized within 2 years of its initial publication in the Federal Register (45 FR 64853) as required by the Endangered Species Act Amendments of 1978. On December 30, 1982, *Gila robusta seminuda* was included on the Vertebrate Notice of Review (47 FR 58454) in category 1. Category 1 includes those taxa for which the Service currently has substantial biological information to support proposing to list the species as endangered or threatened. In April 1983 the Woundfin Recovery Team recommended that this chub, which is found in the same river as the endangered woundfin (*Plagopterus argentissimus*), be added to the Federal list as endangered. Under contract with the Service, a status report on the Virgin River chub was prepared by Mr. C.O. Minckley. This 1983 report recommended that the chub be listed as endangered with critical habitat. On June 24, 1986, the Service published in the Federal Register (51 FR 22949) a proposal to list the Virgin River chub as endangered and to designate its critical habitat.

Summary of Comments and Recommendations

In the June 24, 1986, proposed rule (51 FR 22949) and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule. The original comment period closed on August 25, 1986, but was reopened on September 18, 1986 (51 FR 33096), to accommodate the public hearing and remained open until December 15, 1986. Appropriate State agencies, county and city governments, Federal agencies, scientific organizations, and other interested parties were contacted and requested to comment. Newspaper notices summarizing the proposed rule and inviting general public comment were published in the *Daily Spectrum* on July 28, 1986, and in the *Deseret News* on July 31, 1986. Comments were received from 40 entities and are discussed below. Comments given at the public hearing are also summarized.

Requests for a public hearing were received from John S. Williams, Executive Director, Five County Association of Governments, St. George,

Utah; Jerry B. Lewis, Chairman, Washington County Commission, St. George, Utah; Callister, Duncan and Nebekes, Attorneys-at-Law, Salt Lake City, Utah; Tom Hatch, Chairman, Color Country Resource Conservation and Development, Cedar City, Utah; Norman H. Bangert, Governor, State of Utah, Salt Lake City; and Robert A. Stark, Mayor, Washington City, Utah. A public hearing was held in St. George, Utah, on October 15, 1986. Interested parties were contacted and notified of the hearings, and a notice of the hearing was published in the *Federal Register* on September 8, 1986 (51 FR 33096). Newspaper notices announcing the public hearing were published in the *Daily Spectrum* on October 5, 1986, and in the *Deseret News* on September 19, 1986. A total of 30 people attended the hearing. A transcript of this hearing is available for inspection (see **ADDRESSES**). The 17 oral comments received in the hearings are also summarized below.

Because of the need for a prompt determination of endangered status for the Virgin River chub, and because of the complexity of the economic analysis that must accompany the final rule designating critical habitat, the Service has decided for the present to make final only the listing portion of the proposed rule. Section 4(b)(6)(C) of the Act allows the Service to postpone the designation of critical habitat for up to one additional year from the date of publication of the proposed rule. The final decision on the designation of critical habitat for the Virgin River chub will be made at a later date. Therefore, comments received regarding the proposed critical habitat designation will not be discussed here, but will be addressed in the final notice on critical habitat.

Comments from 32 parties were received: 12 supported the proposal; seven questioned or opposed the proposal and 13 either commented on information in the proposal but expressed neither support nor opposition, were nonbiological or irrelevant to the proposal, or contained only economic or other comments related to critical habitat designation.

Of the 30 people attending the public hearing, 16 people representing 17 parties presented oral statements. Seven parties opposed the listing, six supported the listing, and four parties either commented on information in the proposal but expressed neither support nor opposition, gave nonbiological comments, or provided economic or other comments related to critical habitat designation.

All letters and written or oral statements received during the comment period and public hearings are combined in the following discussion. All comments are available for public inspection (see **ADDRESSES**).

Comments supporting the proposal were received from Arizona Game and Fish Department, Arizona Department of Commerce, Nevada Department of Wildlife, Desert Fishes Council, American Society of Ichthyologists and Herpetologists, Utah Wildlife Federation, American Fisheries Society, Southern Utah Residents Concerned about the Environment, and seven other interested parties.

Comments questioning or in opposition to the proposal were received from Governor Norman Bangert, Washington County Commission, Washington County Water Conservancy District, Washington County Farm Bureau, Utah Farm Bureau Federation, Five County Association of Governments, Color Country Resource Conservation and Development, Washington City, Cities of Hurricane and St. George, and two other interested parties.

Requests for information or comments that expressed neither support nor opposition, were nonbiological, economic, or related to critical habitat were received from Senator Orin Hatch, Senator Jake Garn, Arizona Department of Water Resources, Arizona State Land Department, Utah Department of Natural Resources, Soil Conservation Service (Utah Office), Bureau of Reclamation Upper Colorado Regional Office and Lower Colorado Regional Office, Federal Highways Administration, Washington Office of the Bureau of Land Management (responding for the Arizona State Office), Colorado River Basin Salinity Control Forum, and three interested parties.

Summaries of substantive comments addressing the listing of the Virgin River chub are covered in the following discussion. Comments of similar content are placed in a number of general groups. These comments and the Service's responses are given below:

Issue 1: Listing the Virgin River chub will adversely affect future economic development of southern Utah, particularly by affecting water resource development. In addition, listing is not necessary because existing regulations and controls, along with better water planning, are sufficient to protect the chub.

Response: The Act requires the Service to list a species "solely on the basis of the best scientific and

commercial data available", regardless of the economic impacts. However, the Service does not intend to curtail the future economic development of the area by listing this species. Rather, the Service's intent is to provide the legal platform whereby the conservation of this species will be recognized in future planning. The Act only requires Federal agencies that carry out, fund, or permit projects to provide for the conservation of only those species that are listed as endangered or threatened. The listing of the woundfin as endangered, in 1970, has not impacted ongoing irrigation projects nor has it prevented the construction of Quail Creek Reservoir. Listing the Virgin River chub means that the Service will continue to work with other Federal agencies when they plan a project that may affect the continued survival of the species. The record demonstrates that endangered species rarely cause the abandonment of a project, but rather cause the project to proceed in a manner that provides for the conservation of the species. In addition to working with other Federal agencies, the Service hopes to develop a cooperative relationship with State and local governments and private local user groups to work towards the conservation and recovery of the species.

Issue 2: The 1984 studies by Hickman (Hickman 1985) seem to show an increase in chub abundance since Cross sampled the population in the early 1970's (Cross 1975).

Response: Hickman's data (1985, 1988) is not directly comparable with Cross (1975) because Hickman used more efficient sampling gear and sampled at different sampling sites. While Hickman has collected many more chubs, his sampling efforts greatly exceeded that of Cross. Hickman's observations relative to reproductive success concur with that of the Woundfin Recovery Team, which shows that the chub has spawned successfully only 3 of the past 12 years (1978, 1983, and 1986). This lack of breeding success has continued through the 1988 spawning season. The Service does not interpret 3 years of reproductive success out of the past 12 years as either establishing a trend or as acceptable evidence that the species is not endangered.

Issue 3: Listing the Virgin River chub is premature; the Service should wait until additional biological data are gathered or until ongoing studies are complete.

Response: The available biological data indicate that the Virgin River chub is sufficiently reduced in numbers and range, and is faced with threats serious

enough to warrant listing this species as endangered.

Issue 4: The endangered woundfin inhabits some of the same reaches of the Virgin River as the Virgin River chub. Why does the Service need to list the Virgin River chub when the protection of the Act given to the woundfin will be good enough to protect the Virgin River chub too?

Response: The Virgin River chub fully meets the requirements for listing as endangered as defined by the Act, therefore, the Service is required to list the species. If the Virgin River chub is not listed, its habitat needs will not be taken into account when planning for the habitat needs of the woundfin. Hickman's (1965) results indicate that both young-of-the-year and larger chubs may frequent the same areas as the woundfin, but according to current ecological theory, their habitat requirements cannot be identical. Therefore, the habitat for the chub cannot be adequately considered and protected in the planning and recovery process for the woundfin.

Issue 5: Several commenters disagreed with the Service's conclusion that habitat alteration is a threat to the species. They questioned whether any significant alteration has occurred, and argue that in the past the species has coexisted with development and can be expected to continue to coexist.

Response: The Service believes that habitat alterations, particularly impoundments and irrigation diversions that have already occurred, have significantly changed and reduced the habitat of the Virgin River chub and have contributed to the species' decline. The Virgin River chub has persisted in this greatly modified river, but further alteration and destruction of the species' habitat can only contribute to its decline. Ways in which habitat alteration and destruction have affected the Virgin River chub are discussed under "Factor A" of the "Summary of Factors Affecting the Species."

Issue 6: Chubs are more abundant in heavily impaired habitat (between the Washington Fields Diversion to the Arizona State line) than they are in what appears to be better habitat.

Response: The available data does not support this statement. Virgin River chub abundance is generally highest where the best feeding and holding habitats occur. These habitats are not spread evenly throughout the river, but are usually found where the better flows occur in the river. Highly impacted areas, such as immediately below Washington Fields Diversion, have lower concentrations of chubs.

Issue 7: The Service's population estimates are artificially low because flooding has decreased the number of fish.

Response: It is true that recent flood events appear to have negatively affected the chub populations in some areas. These floods are catastrophic events that have reduced the chub populations, thus the Service's population estimates are not "artificially low." Because there has been a major reduction in the species range, substantial changes in its native habitat, and infrequent spawning success, it will be much harder for these populations to recover to preflood numbers.

Issue 8: The fish is not a valid species or subspecies.

Response: Taxonomic experts unanimously agree that *Gila robusta seminuda* is a valid subspecies. The Virgin River chub has several features that distinguish this subspecies from other subspecies in the genus.

Issue 9: Instead of listing, why can't the Service form a committee, like that formed for the Upper Colorado River fishes, to oversee recovery actions and resolve water use conflicts?

Response: The available data indicate that the Virgin River chub fully meets all the criteria necessary for listing as endangered. Therefore, the Service is required to list the species. Once listed, the chub will receive the same protection the woundfin, Colorado squawfish, humpback chub, and bonytail chub receive. Recovery efforts for the latter three species are coordinated by both the Upper Colorado River Coordinating Committee and the Colorado River Fishes Recovery Team. Virgin River Chub recovery will be coordinated by the Woundfin Recovery Team, which will be renamed the Virgin River Fishes Recovery Team. Without listing, there would be little reason to consider chub habitat needs in any planning for the Virgin River.

Issue 10: Several commenters provided or commented on new data that have been collected since the publication of the proposed rule.

Response: The Service is aware of these data and has incorporated them into the final rule.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that the Virgin River chub should be classified as an endangered species. Procedures found at section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations (50 CFR part 424) promulgated to implement the

listing provisions of the Act were followed. A species may be determined to be endangered or threatened due to one or more of the five factors described in section 4(a)(1). These factors and their application to the Virgin River chub (*Gila robusta seminuda*) are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* As with most desert river systems, the Virgin River has been extensively modified to accommodate human needs, which include irrigation, municipal and industrial uses, recreation, and limited hydropower production. Types of river modifications include: Conversion of flowing waters into still waters by impoundment; alteration of flow regimes (including conversion of perennial waters to intermittent or no flow, and the reduction, elimination, or modification of natural flooding patterns); alteration of water temperatures (either higher or lower); alteration of silt and bed loads; increase in water salinity; loss of marshes and backwaters; and alteration of stream channel characteristics from a well-defined, surface level, vegetated channel with a diversity of substrates and habitats, into a shallower, wider stream bed with little riparian vegetation, uniform substrates, and little habitat diversity. Causes of such alterations include: impoundments, water diversions, riparian vegetation destruction and alteration, channel down cutting, erosion, road construction, channelization, flood control, agricultural use of the stream banks, water pollution, and other watershed disturbances.

Water diversions and impoundments have caused the most obvious negative effects to the Virgin River chub population. Diversions have dewatered or reduced to shallow, braided streams some 35 miles of the Virgin River. These early changes in the Virgin River undoubtedly caused reductions in the abundance of native fishes, including the Virgin River chub, but the changes did not reduce the chubs to the point of extinction.

The Virgin River chub population has persisted in the river despite major river modifications and loss of habitat. Further modifications proposed along the Virgin River and its tributaries are likely to reduce habitat to a point that the river will no longer support the chub and the species will become extinct. Planned modifications to Virgin River tributaries include the following actions. The Washington County Conservancy District has identified four potential

reservoir sites including: Ash Creek above Toquerville, the East Fork of the Virgin River, North Creek above the town of Virgin, and Bullock Reservoir on the North Fork of the Virgin River (Thompson 1986). In addition, the Soil Conservation Service has several projects proposed in the Virgin River basin in Utah, including flood control and irrigation projects (Holt, *in litt.*). To avoid negative impacts to the chub, these projects will have to be carefully planned to provide for the conservation of the chub and its habitat.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* The Service has no evidence to suggest overuse of this fish for any of these purposes.

C. *Disease or predation.* The Asian fish tapeworm (*Bothriocephalus acheilognathi*) poses a major threat to the Virgin River chub (Deacon 1986, Heckmann *et al.* 1986). This parasite was first recorded in Virgin River chubs in the St. George area by Heckmann *et al.* (1986), but probably occurred in chub populations in the lower river since 1979 (Heckmann *et al.* 1986). Fish heavily infected with tapeworms may be less able to cope with environmental stresses created by river modifications and to compete with exotic fishes than are uninfected fish. Heckmann *et al.* (1986) found that parasite loads were correlated with water quality, flow rates, and habitat disturbance, with the highest number and frequency occurring in disturbed sites. Heckmann *et al.* (1986) has speculated that the Asian tapeworm was introduced into the Virgin River via the non-native red shiner (*Notropis lutrensis*).

Unlike other portions of the Colorado River basin, the Virgin River has had relatively few exotic predatory fish species. In the past 70 years, only a few exotic predatory fish, such as green sunfish (*Lepomis cyanellus*), black bullhead (*Ictalurus melas*), and largemouth bass, have been able to invade the Virgin River, and then only with limited success. This lack of success is due primarily to the naturally high salinity, temperature, and turbidity of the stream and its highly fluctuating flows. The extreme physical conditions appear to have inhibited the invasion of many exotic species. Actions that alter natural environmental conditions may create conditions more favorable to exotic fishes.

The red shiner (*Notropis lutrensis*), an exotic species, is a relatively recent addition to the ichthyofauna of the upper Virgin River system. Red shiners have been found below the Virgin River Gorge for more than 25 years, where their increase has corresponded to a

decrease in native fishes. Red shiners have been implicated in the decline of several other native species, are considered to be a threat to the federally endangered woundfin, and may present a significant threat to early life stages of the chub. In the St. George area, the red shiner (*Notropis lutrensis*) became established in 1985 and dominated fish collections within one year. In 1988 a major renovation effort was undertaken to remove the red shiner from 21 miles of the upper river and prevent its reinvasion through the construction of a barrier dam at the head of the Virgin River Gorge. The success of this undertaking continues to be evaluated. The red shiner's recent invasion demonstrates the seriousness of the threat of exotic fish invasions to all native species in the Virgin River.

D. *The inadequacy of existing regulatory mechanisms.* The State of Arizona currently lists the Virgin River chub under Group 2 of the Threatened Native Wildlife of Arizona (Arizona Game and Fish Commission 1982). Group 2 includes those animals whose continued presence in Arizona is now in jeopardy. The State of Nevada lists the species as sensitive (Nevada Board of Wildlife Commissioners 1981), a category which includes those species that may be candidates for classification to a more restrictive status. The State of Utah lists the Virgin River chub as threatened, meaning it is likely to become endangered in the foreseeable future. These State listings protect the chub from unregulated taking. However, none of these State listings provide habitat protection for the chub.

In 1986, Utah passed a law which provides the Utah Division of Wildlife Resources with the opportunity to acquire water rights for in-stream flow purposes to protect fish and wildlife habitat. This provision may allow the State to work with cooperating agencies and individuals to protect sensitive, endangered or threatened species and their habitats. The Nevada water law has no provisions for the acquisition and protection of in-stream water rights for the preservation of fish and wildlife in their habitat.

E. *Other natural or manmade factors affecting its continued existence.* The reduced numbers and range of the Virgin River chub make it particularly vulnerable to the threats discussed above. Because the Virgin River chub exists under continued and expanding levels of stress, any activity that affects the quantity or quality of its habitat will also affect the subspecies.

The Service has carefully assessed the best scientific and commercial information available regarding the past,

present, and future threats faced by this species in determining to make this rule final. Based on this evaluation, the Service has decided to list the Virgin River chub as endangered. A decision to take no action would constitute failure to properly classify the Virgin River chub pursuant to the Endangered Species Act and would exclude this chub from the protection provided by the Act. A decision to propose only threatened status would not adequately reflect the small population size, the reduced range, and the multiple threats faced by this fish. For the reasons given below, critical habitat designation is being postponed. Designation of critical habitat will be addressed in a subsequent Federal Register notice.

Critical Habitat

Section 4(a)(3) of the Act requires that to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time a species is determined to be endangered or threatened. Section 4(b)(6)(C) further indicates that a concurrent critical habitat determination is not required, and that the final decision on designation may be postponed for one additional year from the date of publication of the proposed rule, if the Service finds that a prompt determination of endangered or threatened status is essential to the conservation of the species involved. The Service considers that a prompt determination of endangered status for the Virgin River chub is essential. As a proposed species, the Virgin River chub is eligible only for the limited consideration given under the conference requirement of section 7(a)(4) of the Act, as amended. This does not require a limitation on the commitment of resources on the part of concerned Federal agencies or applicants for Federal permits. Therefore, to ensure that the full benefits of section 7 and other conservation measures provided by the Act will apply to the Virgin River chub, prompt determination of endangered status is essential.

Section 4(b)(2) of the Act requires the Service to consider economic impacts of designating a particular area as critical habitat. The Service received considerable information during the comment period on the possible economic impacts of designating critical habitat. Critical habitat designation is being deferred to allow time to undertake a full economic analysis.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Endangered Species Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. Such actions are initiated by the Service following listing. Potential recovery actions for the Virgin River chub include: (1) Conducting studies on larval drift and the impact of parasites and red shiners; (2) chemical elimination of all fish from below Washington Fields Diversion and restocking the reclaimed river with native species (including the chub); (3) construction of a fish passage barrier below Riverside, Nevada; (4) recommending water management policies; and (5) providing legally protected in-stream flow. The protection required of Federal agencies and prohibitions against taking and harm are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into consultation with the Service.

Portions of the Virgin River flow through Bureau of Land Management lands, the Soil Conservation Service is involved in irrigation water conservation and water quality improvement, potential water projects on the river would be under the jurisdiction of the Bureau of Reclamation, and most construction and alteration activities in the river require an authorizing permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act. These agencies will have to consult with the Service if their actions may affect the

Virgin River chub or its critical habitat. In addition, Federal agencies that fund, authorize, or construct flood control, agricultural, hydropower facilities, channelization, and highway and bridge construction projects would also have to consult with the Service prior to the action.

The Act and its implementing regulations found at 50 CFR 17.21 set forth a series of general prohibitions and exceptions that apply to all endangered wildlife. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to take, import or export, ship in interstate commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. It also is illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving endangered wildlife species under certain circumstances. Regulations governing permits are at 50 CFR 17.22 and 17.23. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, and/or for incidental take in connection with otherwise lawful activities. In some instances, permits may be issued during a specific period of time to relieve undue economic hardship that would be suffered if such relief were not available.

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the *Federal Register* on October 25, 1983 (48 FR 49244).

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Service, Endangered Species Biologist, Albuquerque, New Mexico 87103 (505/766-3972 or FTS 474-3972). Donald Archer, U.S. Fish and Wildlife Service, Salt Lake City, Utah (801/524-4430 or FTS 588-4430) reviewed the rule and provided information on the 1988 eradication project and 1989 flood.

List of Subjects in 50 CFR Part 17

Endangered and threatened wildlife, Fish, Marine mammals, Plants (agriculture).

Regulation Promulgation

Accordingly, part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulation, is amended as set forth below:

PART 17—[AMENDED]

1. The authority citation for part 17 continues to read as follows:

Authority: Pub. L. 93-205, 87 Stat. 884; Pub. L. 94-359, 90 Stat. 911; Pub. L. 95-632, 92 Stat. 3751; Pub. L. 96-159, 93 Stat. 1225; Pub. L. 97-

304, 96 Stat. 1411; Pub. L. 100-476, 102 Stat. 2306; Pub. L. 100-653, 102 Stat. 3825 (16 U.S.C. 1531 et seq.); Pub. L. 99-625, 100 Stat. 3500, unless otherwise noted.

2. Amend § 17.11(h) by adding the following, in alphabetical order under "Fishes," to the List of Endangered and Threatened Wildlife.

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
Fishes:							
Chub, Virgin River.....	<i>Gila robusta semidnuda</i>	U.S.A. (AZ, NV, UT).	Entire.....	E	360	NA	NA

* * * * *

Dated: August 1, 1989.

Susan Recce Lamson,

Acting Assistant Secretary for Fish and Wildlife and Parks

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